

# HERNIA SURGERY



Surgery to Repair  
Your Abdominal Wall

# Understanding Hernias

A **hernia** (or “bulge”) is a weakness or defect in the wall of the abdomen. This weakness may be present at birth. Or, it can be caused by the wear and tear of daily living. Men are more likely to have hernias. But they also occur in women and children. People of any age can get them. Most hernias aren’t life-threatening. But treatment can help get rid of discomfort and prevent the risk of major problems that may require emergency care.



## When a Bulge Forms

A weakness or break in the abdominal wall lets the contents of the abdomen push outward. This can cause a bulge you may see or feel. It can also cause discomfort or pain. Your symptoms depend on the size and location of your hernia. Common symptoms include:

- A bulge in the groin, abdomen, thigh, or genitals. The bulge may get bigger when you stand and go away when you lie down. The bulge may also get larger with lifting, coughing, sneezing, or physical activity.
- Discomfort or pain that is worse at the end of the day or after standing for long periods. Pain may also get worse with lifting, coughing, sneezing, or physical activity.
- A feeling of weakness, pressure, or tugging in the groin.
- Discomfort or pain during urination or bowel movements.



## How Surgery Can Help

A hernia will not heal on its own. Surgery is needed to repair the defect in the abdominal wall. Left untreated, a hernia can get larger. If the tissue in the hernia becomes trapped and loses blood supply, it can die. This can require immediate treatment. Fortunately, hernia surgery can be done quickly and safely. Different types of repairs may be used with the open surgery technique. This type of surgery is done through a single incision in the abdomen or groin. After surgery, you can likely return to your normal routine within a short time.



## CONTENTS

✓ Have your doctor check off the procedure you are having.

- 4 Inside the Abdomen and Groin
- 6 When You Have a Hernia
- 8 How Surgery Works

### Your Hernia and How It's Fixed

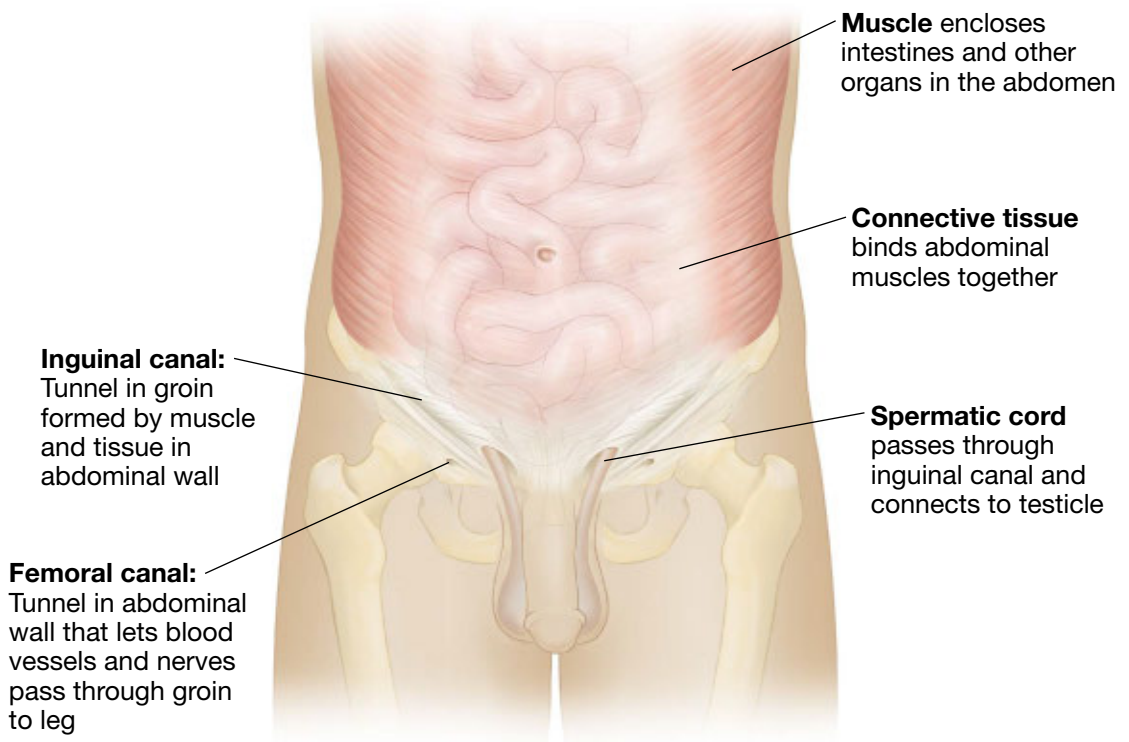
- 10 Understanding Inguinal Hernias
- 12 ● Repairing Inguinal Hernias
- 14 ● Repairing Umbilical Hernias
- 15 ● Repairing Incisional Hernias
- 16 ● Repairing Femoral Hernias
- 17 ● Repairing Epigastric Hernias
- 22 Hernias in Children

### Having Surgery

- 18 Having Hernia Surgery
- 20 Your Recovery

# Inside the Abdomen and Groin

A hernia is a weakness in the abdominal wall. Most often, a hernia happens when tissues in the abdomen bulge through an opening into the groin. Normally, the abdomen and groin are kept apart by a wall of muscle and tissue. This wall helps protect and enclose the intestines and other organs. The only natural openings in the wall are small tunnels called canals. These canals allow nerves, blood vessels, and other structures to pass between the abdomen and groin.



## When the Abdominal Wall Is Weak

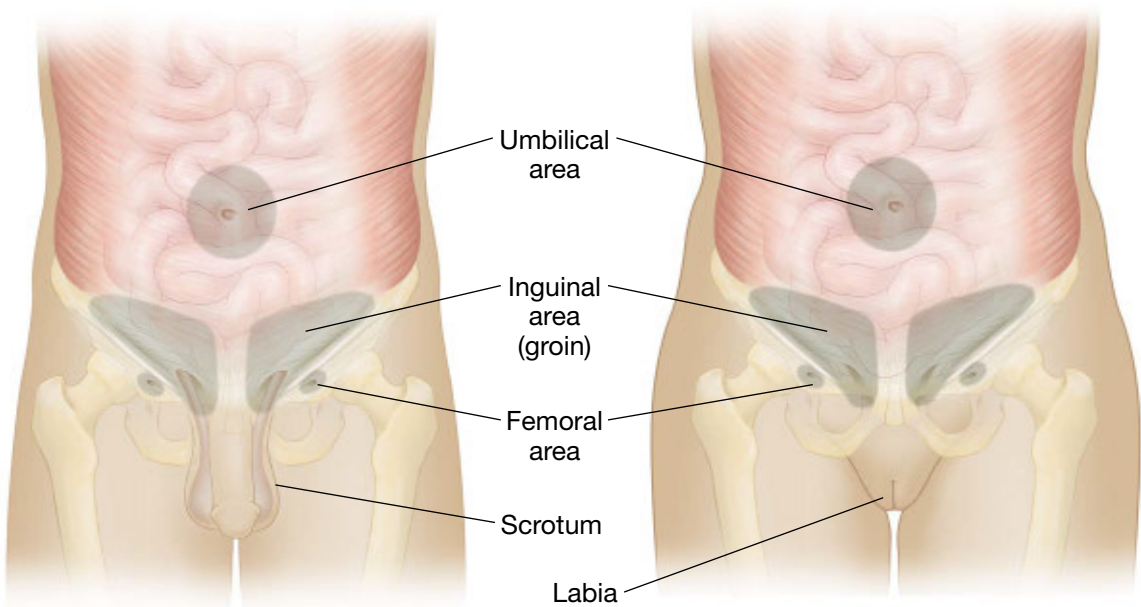
Certain areas of the abdominal wall are prone to weakness. With time and physical stresses, these areas may weaken further and tear. This can allow the intestines or other tissues to bulge through the torn area. Think of the abdominal wall as the rubber on a bicycle tire. If a spot on the outside of the tire weakens and frays, the inner tube will bulge out.

## What Makes an Area Weak?

Any opening in the abdominal wall is prone to weakness. This includes canals in the groin area. It also includes former openings that have closed, such as the navel (bellybutton) or a healed surgical scar. Other areas of the abdominal wall can be weakened by injury or aging.

**Weak Areas in Men**

**Weak Areas in Women**

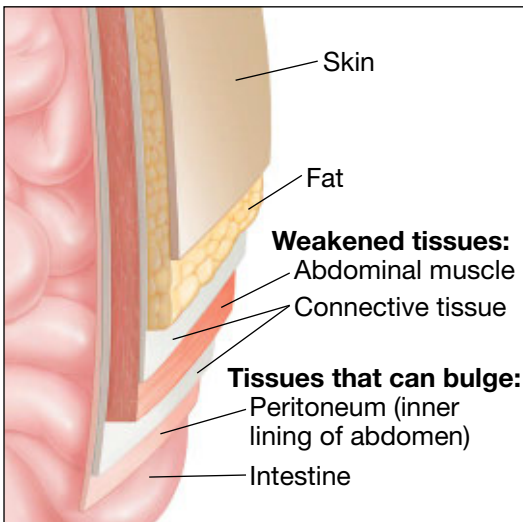


Most hernias in men occur at or near the inguinal canal. This is where nerves and vessels pass between the abdomen and groin.

Like men, women are most likely to get hernias in the inguinal area. But women are more likely than men to have femoral hernias.

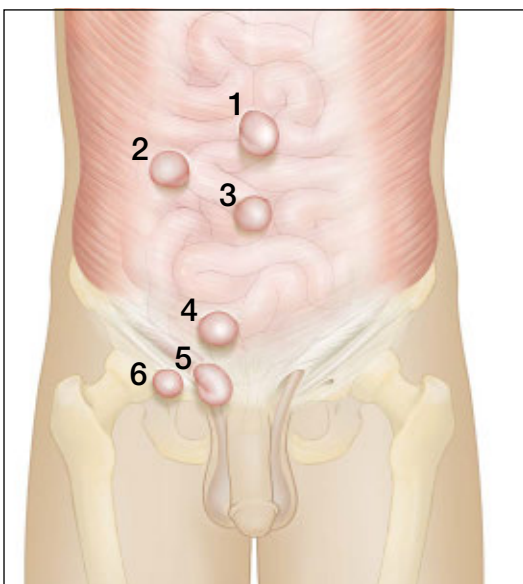
# When You Have a Hernia

The type of hernia you have depends on its location. The most common types of hernias form in the groin. Other types form in the abdomen. They may form around the navel. They may also occur at the site of a previous surgery. Hernias can form on both sides of the body (**bilateral hernias**). They can also recur in the same spot (**recurrent hernias**). In some cases, you can have more than one type at a time.



## Layers of the Abdominal Wall

The abdominal wall is made up of layers of muscle, fat, and other tissues. Together, they strengthen the abdominal wall. Hernia surgery repairs a weakness in the muscle and connective tissue. This prevents the intestines or other tissue from bulging out again.



## Locating Your Hernia

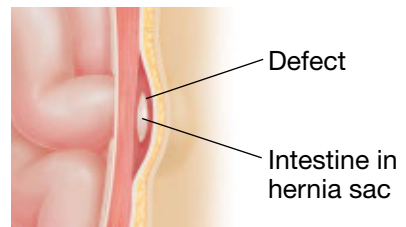
1. **Epigastric hernias** occur in the upper abdomen at the midline.
2. **Incisional hernias** occur at the site of a previous surgical incision.
3. **Umbilical hernias** occur at the navel.
4. **Direct inguinal hernias** occur in the groin near the opening of the inguinal canal.
5. **Indirect inguinal hernias** occur in the groin at the opening of the inguinal canal.
6. **Femoral hernias** occur in the femoral canal.

## How a Hernia Develops

A hernia bulge may appear suddenly. But hernias often take years to form. They grow as pressure inside the body presses the intestines or other tissues through a weakness in the abdominal wall or groin. With time, these tissues can cause a bulge you can see beneath the skin of the abdomen. Or, they can bulge into the groin, thigh, scrotum, or labia. In some cases, a loop of intestine may become trapped by muscle tissue (**incarcerated**). This can cause severe pain. If left untreated, the intestine may lose blood flow. It becomes **strangulated**. This requires emergency surgery.

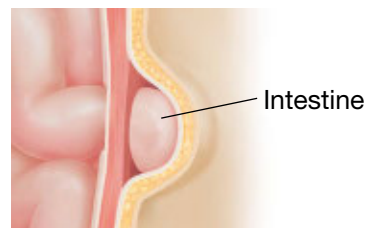
### The Wall Weakens or Tears

The abdominal lining bulges out through a weak area. It begins to form a **hernia sac**. The sac may contain fat, intestine, or other tissues. At this point, the hernia may or may not cause a visible bulge.



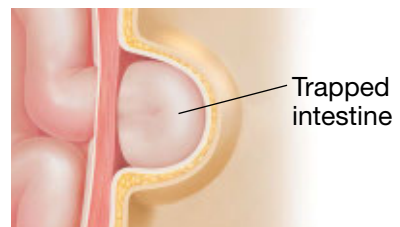
### The Intestine Pushes into the Sac

The intestine pushes further into the sac. It forms a visible bulge. The bulge may flatten when you lie down or push against it. This is called a reducible hernia. It doesn't cause immediate danger.



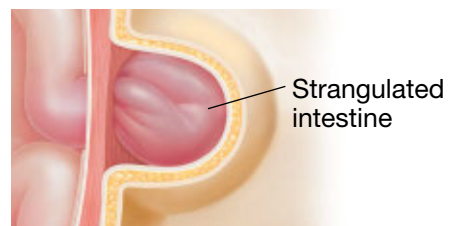
### The Intestine May Become Trapped

The contents of the sac may become incarcerated. If this happens, you won't be able to flatten the bulge. You may also have pain. Prompt treatment may be needed.



### The Intestine May Become Strangulated

If the intestine is tightly trapped, it becomes strangulated. The strangulated area loses blood supply and may die. This can block the intestine and cause severe pain. Emergency surgery is needed to relieve the blockage.





# How Surgery Works

**Surgery treats a hernia by repairing the weakness in the abdominal wall. You will work with your surgeon to determine the best surgical plan for you. Be sure to ask any questions you may have about your procedure. Understand the type of repair you will be having. Repair types include **traditional** or **tension-free**. You'll be better prepared to make decisions if you understand the surgery and its risks.**

## Be Informed

Open hernia surgery has been suggested to help repair your abdominal wall. Understand what the procedure can and cannot do for you. Know about any other treatment options you may have. Any surgery has risks, so be clear what the risks are for you. Know what you need to do to prepare for surgery and recover from it. By being informed, you can help your surgeon ensure that your needs are met.



## Risks and Complications

*As with any surgery, each type of hernia repair has risks and possible complications. Your surgeon will explain these to you. They include:*

- Bleeding or bruising
- Infection
- Numbness or pain in the groin or leg
- Damage to nerves or blood vessels
- Return of the hernia (recurrence)
- Damage to the testicles, ovaries, or function of the testicles
- Mesh complications (such as infection or erosion)
- Bowel or bladder injury

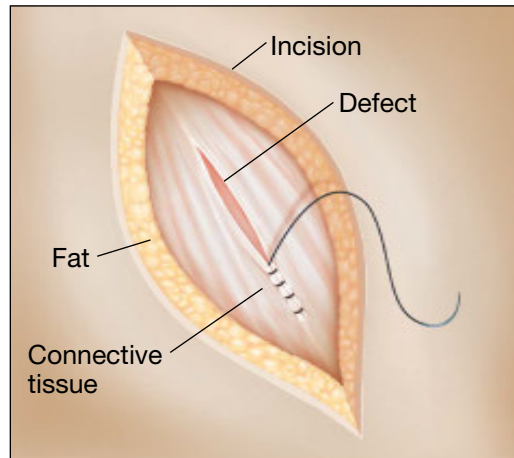






## Traditional Repairs

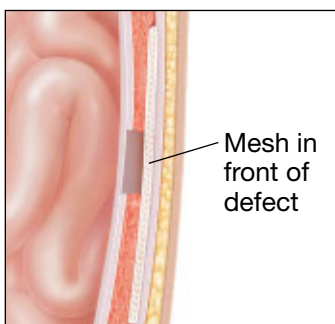
An incision is made over the hernia. The connective tissue of the muscle around the weak area is then sewn together. The incision is closed with stitches, staples, surgical tape, or special glue. This method can be used to repair any type of hernia.



## Tension-Free Repairs

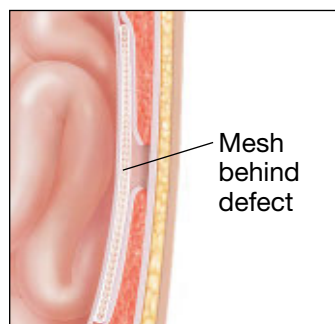
Special mesh materials are used to repair the weak area. The abdominal muscle isn't stitched together. Instead, the mesh covers the weak area like a patch. The mesh is stitched to nearby tissues. This repairs the defect without tension on the muscles. The mesh is a strong, flexible plastic that stays in the body. Over time, nearby tissues grow into the mesh to strengthen the repair. Tension-free repairs are made in different ways.

### Repair in Front



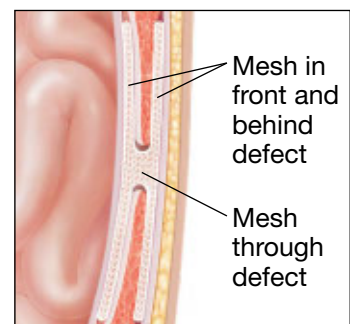
A mesh patch is placed in front of the weak area.

### Repair in Back



A mesh patch is placed behind the weak area.

### Bi-Layer Repair



Patches are placed above, behind, and through the weak area.

# Understanding Inguinal Hernias

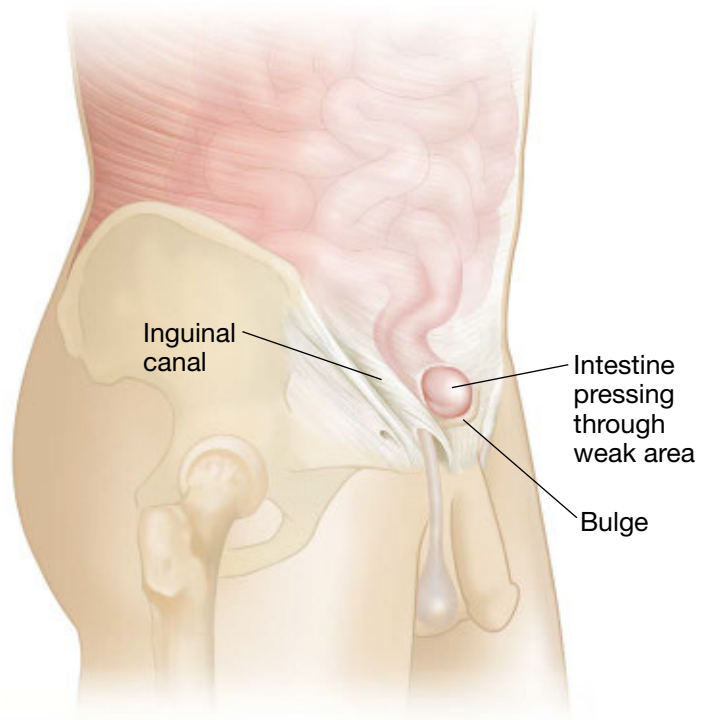
Inguinal (groin) hernias are common in both men and women. There are two types: **direct inguinal hernias** and **indirect inguinal hernias**. They form at or near a tunnel between the abdomen and groin. This is called the inguinal canal. Your surgeon may not be able to tell which type you have before surgery. But he or she will be able to identify and repair either type during surgery.

## Direct Inguinal Hernias

Direct hernias are less common than indirect hernias. They form at a weakness in the abdominal wall next to the inguinal canal. Over time, the intestine can press through the weak area. This causes it to bulge into the groin.

### Direct Inguinal Hernias in Men and Women

Men are more likely to get direct hernias. But they can happen to both men and women. This is often true after age 40. Direct hernias may get worse with age or physical stress. They can also occur at the same time as an indirect hernia. For this reason, the direct area may also be reinforced during surgery for an indirect hernia.

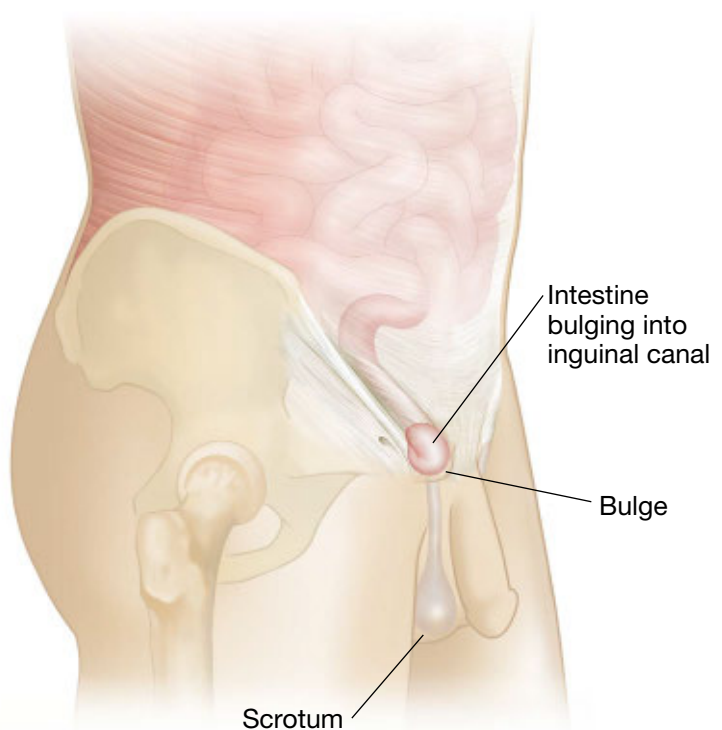


## Indirect Inguinal Hernias

An indirect inguinal hernia forms at the inguinal canal. This area is prone to weakness. With time and gravity, the intestine can pass into the canal. This forms a bulge in the groin.

### Indirect Inguinal Hernias in Men

Indirect inguinal hernias are the most common hernias in men. As a male fetus develops in the womb, the testicles descend. They move from the abdomen down through the inguinal canal into the scrotum. The tissues around the canal may not close properly. If this happens, a hernia can follow the same path later in life. The intestine can sometimes bulge through the canal into the scrotum.



### Indirect Inguinal Hernias in Women

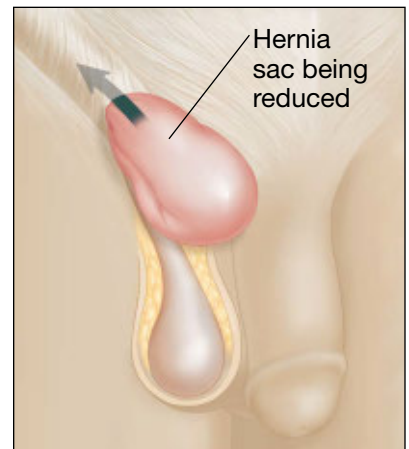
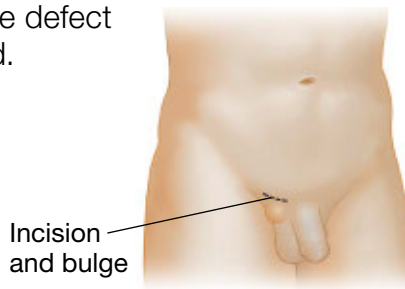
Indirect inguinal hernias also happen in women. As a female fetus develops in the womb, ligaments and other structures move. They travel from the abdomen down through the inguinal canal. The tissues around the canal may not close properly. If this happens, a hernia can follow the same path later in life. The intestine can sometimes bulge through the canal into the labia.

# ● Repairing Inguinal Hernias

**Your surgeon will talk with you about the best method to repair your hernia. A traditional repair may be used (see page 9). Or, a mesh device is used to make a tension-free repair. In such a case, new tissue grows into the mesh. This strengthens the repair. It also helps prevent the hernia from recurring.**

## Reducing the Hernia

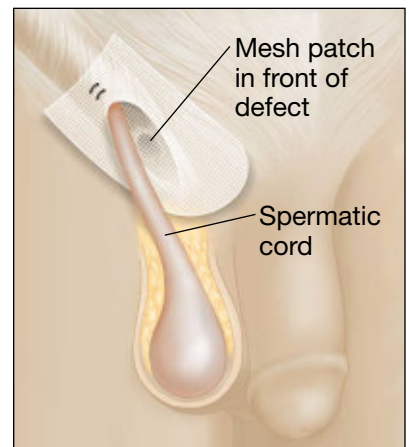
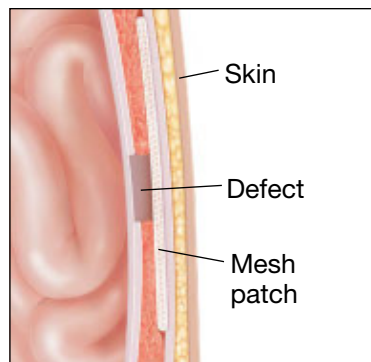
An incision is made above the weakened area. The hernia sac and any protruding tissue are then pushed back into the abdomen. If needed, the sac may be tied off and removed. The defect can then be repaired.



## Repair with a Patch

A thin mesh patch is placed in front of or behind the defect. It is secured to nearby tissues. Once the patch is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue.

Side view

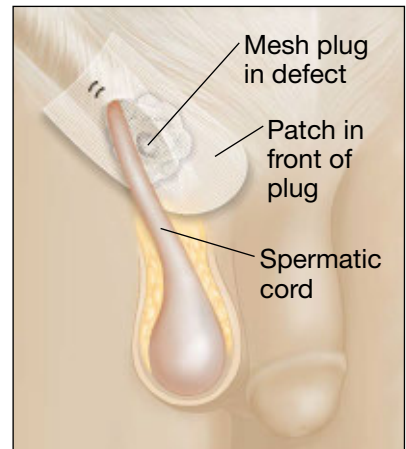
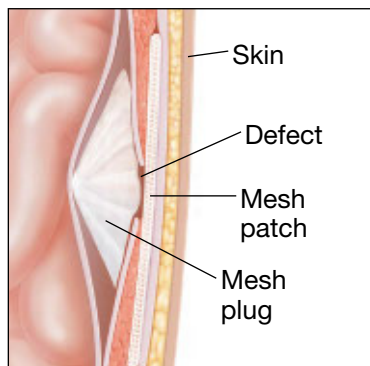




## Repair with a Plug and Patch

A mesh plug is used to fill the hole in the abdominal wall. A mesh patch is then secured in front of the defect to provide strength. Once the mesh is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue.

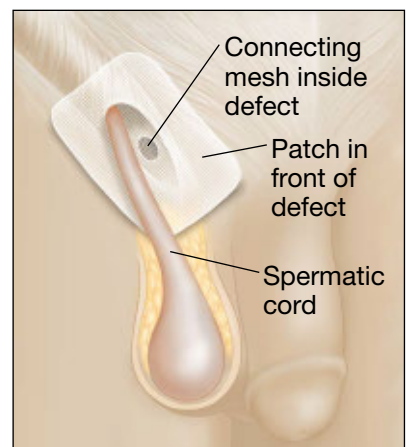
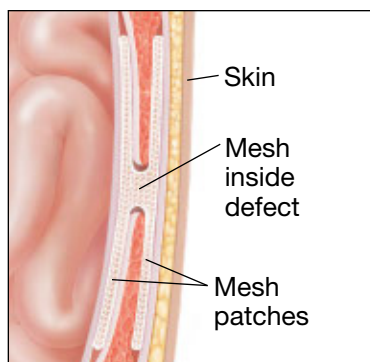
Side view



## Repair with a Bi-Layer Device

A bi-layer device uses mesh patches placed in front of and behind the defect. They are connected by a mesh bridge that goes through the opening in the abdominal wall. Once the mesh is secured in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue.

Side view

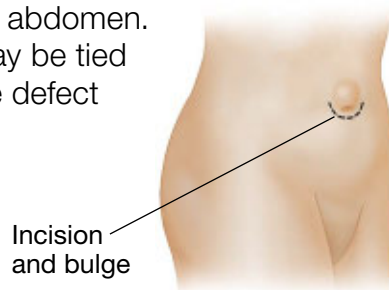


# ● Repairing Umbilical Hernias

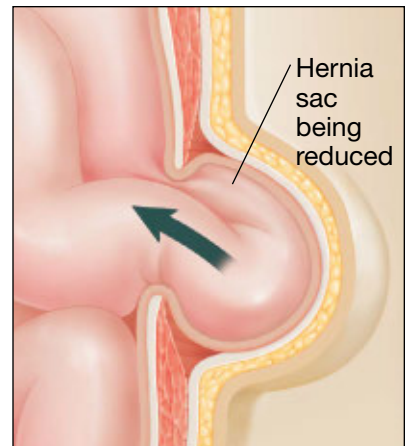
**Umbilical hernias form at the navel. They are common in both adults and children. The hernia may be present at birth. It can also be caused by abdominal pressure from pregnancy, frequent coughing, being overweight, or other factors.**

## Reducing the Hernia

An incision is made to reach the weakened area. The hernia sac and any protruding tissue are then pushed back into the abdomen. If needed, the sac may be tied off and removed. The defect can then be repaired.

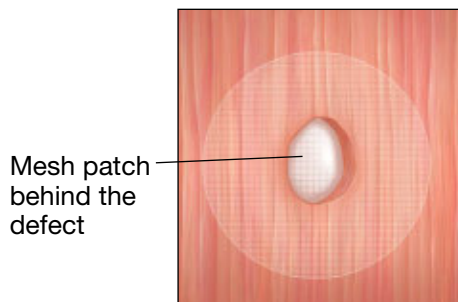


Side view

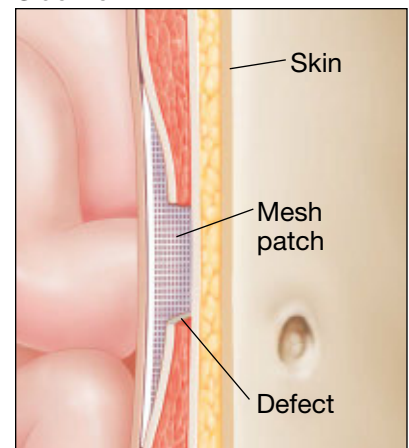


## Repairing the Weakness

A traditional repair may be done (see page 9). Or, a thin mesh patch is placed behind or in front of the defect. It is then secured to nearby tissues. Once the mesh is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue. Over time, new tissue grows into the mesh. This strengthens the repair and helps prevent the hernia from recurring.



Side view



# ● Repairing Incisional Hernias

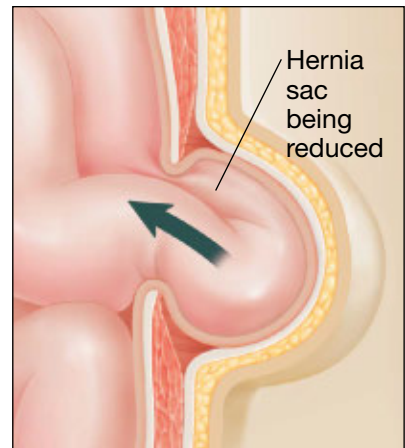
**Incisional hernias bulge through the scar left by an older surgical incision. They can form months or years after surgery. Over time, these hernias can widen and become harder to repair. They can also become **strangulated**. This requires emergency surgery.**

## Reducing the Hernia

An incision is made through the old surgery scar. The hernia sac and any protruding tissue are then pushed back into the abdomen. If needed, the sac may be tied off and removed. The weak area can then be repaired.

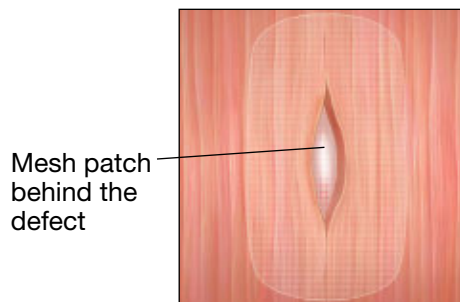


Side view

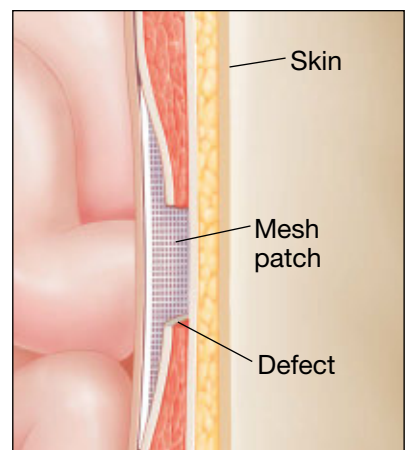


## Repairing the Weakness

A traditional repair may be done (see page 9). Or, a thin mesh patch is placed behind or in front of the defect. It is then secured to nearby tissues. Once the mesh is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue. Over time, new tissue grows into the mesh. This strengthens the repair and helps prevent the hernia from recurring.



Side view



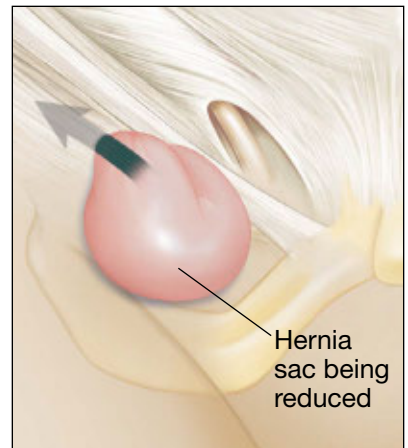
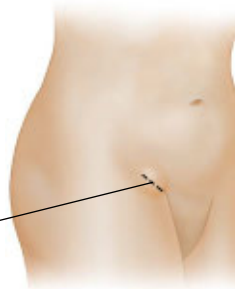
# ● Repairing Femoral Hernias

**Femoral hernias are more common in women. They result from a weakness in the femoral canal. These hernias are small, but if they trap the intestine, it may require emergency surgery.**

## Reducing the Hernia

An incision is made to reach the weakened area. The hernia sac and any protruding tissue are then pushed back into the abdomen. If needed, the sac may be tied off and removed. The defect can then be repaired.

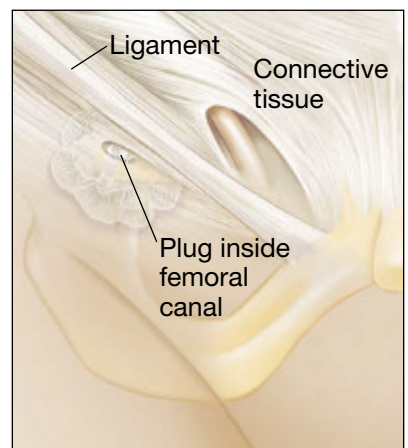
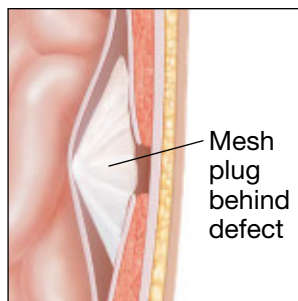
Incision  
and bulge



## Repairing the Weakness

A traditional repair may be done (see page 9). Or, a mesh plug is often used to fill the hole in the abdominal wall. It is then secured to nearby tissues. In some cases, a mesh patch is used instead of a plug. Once the mesh is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue. Over time, new tissue grows into the mesh. This strengthens the repair and helps prevent the hernia from recurring.

Side view



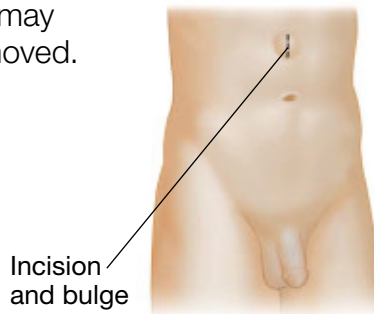


# ● Repairing Epigastric Hernias

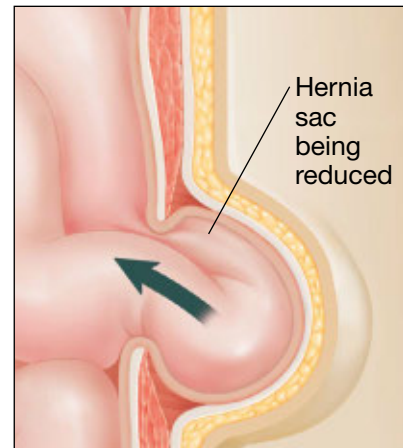
**Epigastric hernias form in the upper abdomen at the midline. This is an area where muscle and connective tissue fibers are prone to weakness.**

## Reducing the Hernia

An incision is made to reach the weakened area. Any protruding tissue is then pushed back into the abdomen. If needed, the sac may be tied off and removed. The defect can then be repaired.

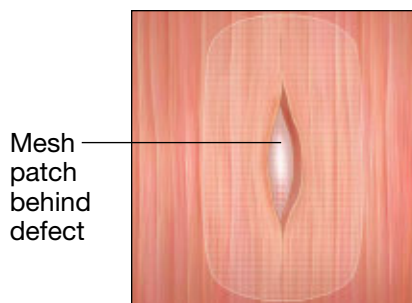


Side view

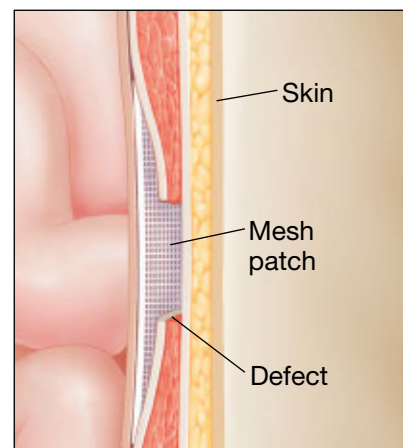


## Repairing the Weakness

A traditional repair may be done (see page 9). Or, a thin mesh patch is placed behind or in front of the weak area. It is then secured to nearby tissues. Once the mesh is in place, the skin is closed. This is done with stitches, staples, surgical tape, or special glue. Over time, new tissue grows into the mesh. This strengthens the repair and helps prevent the hernia from recurring.



Side view



# Having Hernia Surgery

**Your surgeon will meet with you to do a physical exam and ask about your medical history. This helps to ensure that you are healthy enough for surgery. Then you and your surgeon will schedule a date for surgery. Follow your surgeon's advice on how to get ready for the procedure. Your hospital stay is likely to be short. You may go home the same day as your procedure. Or, you may stay in the hospital overnight.**

## Getting Ready for Surgery

Your surgeon will talk with you about getting ready for surgery. Follow all the instructions you're given.

- Make a list of all medications, supplements, and herbal remedies you take. This includes both prescription and over-the-counter drugs. Show this list to your surgeon. You may be asked to stop taking some or all of them before surgery. Be sure to mention if you are taking medications to prevent blood clots (blood thinners).
- Have an adult family member or friend give you a ride home after surgery.
- Stop smoking. Smoking affects blood flow, slows healing, and increases the chance of infection.
- Gently wash the surgical area the night before surgery. *Do not* shave the surgical area unless your surgeon tells you to do so.
- You may be told not to eat or drink after midnight the night before your surgery.



▶▶ **Be sure to prepare for your surgery as instructed.**

## The Day of Surgery

Arrive at the hospital or surgical center on time. You'll be asked to change into a patient gown. You'll also be asked your name and what surgery you are having. This is for your safety, so you are likely to be asked more than once. The area of your body that will be operated on will be marked. An IV line will be placed. This provides fluids and medication. Shortly before surgery, an anesthesiologist will talk with you. He or she will explain the types of anesthesia used to prevent pain during surgery. You will have one or more of the following:

- **Monitored sedation.** This makes you relaxed and drowsy.
- **Local anesthesia.** This numbs the surgical site.
- **Regional anesthesia.** This numbs specific areas of your body.
- **General anesthesia.** This puts you into a state like deep sleep.

## After Surgery

When the procedure is over, you'll be taken to the recovery area. Your blood pressure and heart rate will be monitored. You'll have a dressing over the surgical site. Pain medications will be given to help reduce discomfort. You may also be taught breathing exercises to keep your lungs clear. You'll be asked to get up and walk, often soon after surgery. This helps prevent blood clots in the legs. You can go home when your surgeon says you're ready.



# Your Recovery

**Help make surgery a success by taking an active role in recovery. Expect some pain, bruising, and swelling after surgery. Follow your surgeon's instructions about caring for your incision. Then begin easing back into your routine. For best results, take short walks as soon as you can. This helps prevent blood clots in the legs. It will also help speed healing. And be sure to keep all follow-up appointments.**

## Reduce Swelling

For the first few days, the area around the incision will be swollen, discolored, and sore. To help reduce swelling, put an ice pack or bag of frozen vegetables in a thin towel. Then place the towel on the swollen area. Do this 3 to 5 times a day for 15 to 20 minutes at a time. Take care of the incision as advised by your surgeon. You should also ask your surgeon when it's okay to start bathing again. In most cases, this is a day or two after surgery.

### If a Groin Hernia Was Repaired

You may have swelling that gets worse after a few days. This is because blood and fluids can collect in the groin and genitals. You will likely have severe bruising on the scrotum and penis (men), labia (women), or thighs. To help reduce swelling, use ice packs as directed above. Wearing supportive underwear, such as briefs, can also help reduce discomfort.



▶▶ **Use an ice pack or a bag of frozen vegetables to help reduce swelling.**

## Manage Pain

You may have some pain for the first few days. You may also feel bloated and tired. Your surgeon will prescribe pain medications as needed. Don't wait for pain to get bad. Take your medications on time as directed. Be aware that some pain medications can cause constipation. Your surgeon may also suggest a laxative or stool softener.



## Return to Activity

You can start getting back to your routine as soon as you feel able. Just take it easy at first. Follow all your surgeon's advice for recovery. The following tips may help:

- Take short walks to improve circulation.
- Avoid heavy lifting as directed by your surgeon.
- Ask your surgeon about returning to work.
- Eat healthy, high-fiber foods and drink plenty of fluids.
- You can begin having sex again when you feel ready.



## Keep Follow-Up Appointments

Keep all follow-up appointments during your recovery. These let your surgeon check your progress and make sure you're healing well. You may also need to have your stitches, staples, or bandage removed. During office visits, tell your surgeon if you have any new symptoms. Your surgeon can also help answer any questions or concerns you may have.

## When to Call the Surgeon

*Call your surgeon if you have:*

- Fever of 100.4°F (38°C) or higher
- A large amount of swelling or bruising (some testicular swelling and bruising is common)
- Bleeding or increasing pain
- Increasing redness or drainage of the incision
- Trouble urinating
- Nausea or vomiting



# Hernias in Children

**Hernias in infants and young children are not uncommon. They're caused by an abdominal wall defect. This defect is present at birth. Most often, the hernia forms in the groin or umbilical area. It can often be felt as a bulge under the skin. Childhood hernias can be safely repaired using same-day surgery. Most children recover quickly with only minor discomfort.**

## Questions You May Have

It's normal to have concerns about your child's surgery. Here are answers to some common questions:

- **Is surgery safe?** Yes. Complications from hernia surgery are rare. Most children get back to normal in a very short time.
- **Will my child be in pain during surgery?** No. Your child will be given medications that make him or her sleep during surgery. Some mild discomfort after the operation is normal.
- **Is surgery always needed?** Umbilical hernias in infants may get better without surgery. But repairing a groin hernia is safer than leaving it untreated.

## Preparing Your Child for Surgery

Follow your surgeon's advice to help get your child ready for surgery. You may be asked to:

- Tell the surgeon about any medications your child takes. This includes children's pain relievers.
- Be with your child during tests. These may include urine and blood tests.
- Prevent your child from eating or drinking after midnight the night before surgery, unless you're told otherwise.

## Risks and Complications

*Hernia surgery for children is generally safe, but does have some risks. These can include:*

- Bleeding or infection at the incision site or inside the body
- Numbness or pain in the groin or leg
- Inability to urinate
- Return of the hernia
- Bowel or bladder injury
- Damage to the testicles or ovaries



►► Tell the surgeon all of the medications your child takes.

## The Day of Surgery

Your child will be given an IV line to provide fluids and medications. You'll then meet with the anesthesiologist. He or she will talk with you about the anesthesia used to prevent pain during surgery. The type of surgery your child will have depends on the location of the hernia. Your child may have a related problem, such as an undescended testicle. This may also be repaired at the same time as the hernia.

### Groin Hernia

An incision is made in the lower abdomen. Any protruding tissue is pushed back into place. The hernia sac is then removed if needed and the incision is closed.



### Umbilical Hernia

A semicircular incision is made under the navel. Any protruding tissue is pushed back into place. The hernia sac is then removed if needed and the incision is closed.



## Your Child's Recovery

Your child can likely go home the same day as surgery. Don't worry if you notice some swelling or bruising. This is normal and should go away in a short time. Encourage your child to move around. This helps speed recovery. But your child should avoid rough play for about a week. After that, it's okay to let your child get back to normal activities. If you have questions or concerns, talk with the surgeon during follow-up visits.

## When to Call the Surgeon

*After surgery, call the surgeon if your child has any of these:*

- A large amount of swelling or bruising
- Fever of 100.4°F (38°C) or higher, or chills
- Increasing redness or drainage of the incision site
- Bleeding at the incision site
- Increasing pain
- Nausea or vomiting





## Work with Your Surgeon

Hernia surgery can relieve your pain and discomfort. It can also help prevent life-threatening problems. Talk with your surgeon to learn why hernia surgery may be the best choice for you. You *can* feel good again. Your surgeon and healthcare team will help you every step of the way.

## Be Prepared

The better prepared you are, the smoother your recovery is likely to be.

- Follow all instructions from your surgeon.
- Be sure you have support at home.
- Be sure to have all your questions answered.

Also available in Spanish

**TAKE OUR PATIENT SURVEY.** Help us help other patients.  
Please visit [www.KramesSurvey.com](http://www.KramesSurvey.com) to provide your feedback on this booklet.

This booklet is not intended as a substitute for professional medical care.  
Only your doctor can diagnose and treat a medical problem.  
©2013, 2015, 2018 Krames, LLC. [www.kramesstore.com](http://www.kramesstore.com)  
**800.333.3032** All rights reserved. Made in the USA.

